EPIDURAL ANESTHESIA KIT

TECHNICAL FIELD OF THE INVENTION

[0001] The present invention relates to administering anesthesia to patients and more particularly to an improved epidural anesthesia kit and method.

BACKGROUND OF THE INVENTION

[0002] Epidural anesthesia is a common neuraxial analgesia for labor and other procedures. In delivering epidural anesthesia, the healthcare provider desires safely and efficiently to provide the anesthesia to the patient. This form of anesthesia is most frequently used with women who are in labor, but a number of other uses exist as well.

[0003] The use of epidural anesthesia is well established and various approaches have been documented. See generally, Samuel Hughes, Gershon Levinson, and Mark Rosen, eds., *Shnider and Levinson's Anesthesia for Obstetrics* (Philadelphia: Lippincott, Williams & Wilkins, 2002) and Mark Norris, ed., *Obstetric Anesthesia* (Philadelphia: Lippincott, Williams & Wilkins, 1999). The technique suggested in Shnider and Levinson's text involves the steps that follow.

[0004] After a number of preliminary steps are taken, the patient is positioned, the back of the patient is washed with an appropriate antiseptic solution, and the lumbar area is draped. The lumbar spinous processes are palpated and the widest interspace is selected below L3. An epidural needle is then used to locate the epidural space using a midline approach or lateral or paramedian approach. Typically the loss-of-resistance technique is used with a saline-filled or air-filled syringe to identify the likely location of the epidural needle during placement. Once the needle is placed, one aspirates for blood or cerebrospinal fluid. The catheter is then placed through the needle. A free saline or dilute local anesthetic may be used to facilitate the passage of the catheter.

[0005] After the catheter is inserted, the needle is removed and a test dose is usually administered; the text describes it this way: "Use of a 3-mL test dose of a local anesthetic containing epinephrine 1:200,000 ($5\ \mu g \cdot mL^{-1}$) is most common. Observe for heart rate increase within 60 sec. or evidence of spinal blockade within 3-5 min. If test dose is negative, administer additional drug in divided doses as required to obtain desired pain relief." After this, certain follow-up steps are suggested.

[0006] Numerous kits are available for administering epidural anesthesia. One of the many possible examples is the Baxter® Continuous Epidural Anesthesia tray (Model 1T2673). This kit contains a plastic tray container that is sealed with a top sheet that can be removed. Once it is removed all the items inside the tray are resting upon a large towel blanket that is folded around the contents, i.e., the contents are wrapped in the towel. When the towel (or blanket) is opened one finds another towel to be used and a drape. Once those are removed there is a first subtray that contains three gauze sponges and a package of a skin preparation solution (Providone iodine solution USP, 10% Providone iodine, Titratable iodine 1%). Under that subtray there is another subtray or procedural tray that contains the following items: A glass vial with 1.5% Lidocaine Hydrochloride injection, and Epinephrine 1:200,000, 5 mL (for test dose); 1% lidocaine Hydrochloride injection, USP 5 mL; 0.9% Sodium Chloride injection, USP, 10 mL; mixing cups; syringe, 3 cc with needle, 18 ga.×3.8 cm; needle, 25 ga.×2.5 cm; needle, 22 ga.×3.8 cm; needle, filter aspirating, 19 ga.×3.8 cm; procedure filter, 0.22 microns; sharp's stickpad, a catheter connector; a catheter support pad; a syringe, 20 cc; syringe tip and catheter connector; protectors; fenestrated drape; and an epidural caution label.

[0007] In using a kit like this one, the top level of the package is first opened and the towel that surrounds everything is unfolded to reveal the contents. The skin-preparation subtray is removed and set out. The skin preparation solution is opened and poured into a compartment of the skin-prep subtray, and then the gauze sponges are dipped and used to prepare the skin. The skin-preparation solution must typically be placed on the skin a certain period of time before other steps can be taken in the procedure. With respect to preparing other implements, the healthcare provider breaks the vial containing the local anesthetic, i.e., the tip of it is literally broken off by hand. This-as with the breaking of other glass vials-can lead to the healthcare provider cutting himself or herself on the glass. The local anesthetic can be loaded into a syringe using a filter needle to address concerns about any glass being in the anesthetic. Then the filter needle is replaced by a hypodermic needle, and then the patient's skin can be punctured and the local anesthetic delivered.

[0008] Assuming a loss-of-resistance technique is being used with saline, the vial containing saline (sodium chloride) must be broken off and then the saline is placed in the epidural syringe. Then the epidural needle (Tuohy, Crawford, etc.) is attached. The needle is placed in the epidural space. A test does may be given to help confirm placement of the needle. To administer the test dose, a glass vial with the test dose is broken, filtered, and loaded into a syringe and administered. Once the test satisfies the healthcare provider that the needle is properly placed, a catheter may be placed and an initial loading dose can be administered. The epidural catheter may be placed through the epidural needle and put into the proper location and then the epidural needle removed. If a continuous epidural anesthesia is to be applied, the catheter is then attached to the appropriate equipment. With all the preparations and steps, this can be a lengthy process.

[0009] In anesthesia kits in general, the skin preparation components are typically in a tray as discussed above. One recent kit secures the skin preparation package by placing it in an interior fold of an outer towel. In this kit, AGB's ARROWgard Blue plus™ Multi-Lumen CVC Super Kit (AK-45703-SK) by Arrow International of Reading, Pa., a 1-step applicator (CHLORAPREP®) is found inside a first or second fold of the exterior towel. When accessing the 1-step applicator, the healthcare provider opens the package and has to unfold the external towel at least partially to access the skin preparation unit, and then with one or two more folds the remainder of the kit is accessed as well.

[0010] Improvements remain desirable-especially for epidural blocks. Particularly of interest are improvements in the safety of the procedure and kits as well as any timesaving devices or steps.